

## AMENDMENT

## In the Claims:

A. Kindly cancel Claim 4, without prejudice.

B. Kindly amend Claims 1, 2, 5, 12, and 14, as follows.

1. **(currently amended)** A method of fabricating a semiconductor device, having a nitride/high-k material/nitride gate dielectric stack, comprising:  
initiating formation of the nitride/high-k material/nitride gate dielectric stack by:  
depositing a first ultra-thin nitride film on a semiconductor substrate,  
5 wherein the first ultra-thin nitride film is deposited by using an atomic  
layer deposition (ALD) technique;  
depositing a high-k material on the first ultra-thin nitride film,  
wherein the high-k material comprises a thin metal film, and  
wherein the thin metal film comprises at least one material selected from  
10 a group consisting essentially of zirconium (Zr), hafnium (Hf),  
and titanium (Ti); and  
depositing a second ultra-thin nitride film on the high-k material,  
thereby forming a sandwich structure, wherein the second ultra-thin  
nitride film is deposited using an atomic layer deposition (ALD)  
15 technique;  
completing formation of the nitride/high-k material/nitride gate dielectric stack from the  
sandwich structure; and  
completing fabrication of the device.
2. **(currently amended)** A method as recited in claim 1, wherein the substrate comprises  
a material selected from a group consisting of a silicon wafer [or] and a silicon-on-  
insulator (SOI) wafer.

3. **(originally filed)** A method as recited in claim 1,  
wherein the first ultra-thin nitride film comprises silicon nitride ( $\text{Si}_3\text{N}_4$ ), and  
wherein the first ultra-thin nitride film has a thickness in a range of 1 to 2 atomic layer(s).
4. **(canceled)**
5. **(currently amended)** A method as recited in claim 1, wherein the thin metal film further  
comprises [at least one metal selected from a group consisting essentially of zirconium  
(Zr), hafnium (Hf), titanium (Ti), and] tantalum (Ta).
6. **(originally filed)** A method as recited in claim 1, wherein the thin metal film comprises  
a metal oxide.
7. **(previously amended)** A method as recited in claim 1,  
wherein the second ultra-thin nitride film comprises silicon nitride ( $\text{Si}_3\text{N}_4$ ), and  
wherein the second ultra-thin nitride film has a thickness in a range of 1 to 2 atomic  
layer(s).
8. **(currently amended)** A method as recited in claim 1, wherein completing formation of  
the nitride/high-k material/nitride gate dielectric stack from the sandwich structure  
comprises:  
depositing a thick gate material on the second ultra-thin nitride film;  
5     patterning the thick gate material, thereby forming a gate electrode; and  
etching portions of the sandwich structure uncovered by the gate electrode, thereby  
completing formation of the nitride/high-k material/nitride gate dielectric stack.
9. **(originally filed)** A method as recited in claim 1, wherein completing fabrication of the  
device comprises forming of a MOSFET structure comprising the gate dielectric stack.
10. **(originally filed)** A method as recited in claim 8,  
wherein the thick gate material comprises a material selected from a group consisting  
essentially of polysilicon (poly-Si) and polysilicon-germanium (poly-SiGe), and  
wherein the thick gate material is patterned using a material such as photoresist.

11. **(originally filed)** A method as recited in claim 1, wherein completing fabrication of the device comprises:

forming a source/drain structure in the substrate and flanking the gate dielectric stack;  
forming at least one spacer on at least one sidewall of the gate dielectric stack; and  
5 silicidizing a shallow source/drain region as well as the high-k gate stack, thereby  
forming a source/drain silicide in a shallow source/drain region of the substrate  
and a gate silicide on the gate dielectric stack.

12. **(currently amended)** A method of fabricating a semiconductor device, having a nitride/high-k material/nitride gate dielectric stack, comprising:

initiating formation of the nitride/high-k material/nitride gate dielectric stack by:  
depositing a first ultra-thin nitride film on a semiconductor substrate,

5 wherein the first ultra-thin nitride film is deposited by using an atomic  
layer deposition (ALD) technique, and

wherein the substrate comprises a material selected from a group  
consisting of a silicon wafer [or] and a silicon-on-insulator (SOI)  
wafer;

10 depositing a high-k material on the first ultra-thin nitride film,

wherein the high-k material comprises a thin metal film, and

wherein the thin metal film comprises at least one material selected from  
a group consisting essentially of zirconium (Zr), hafnium (Hf),  
and titanium (Ti); and

15 depositing a second ultra-thin nitride film on the high-k material,

thereby forming a sandwich structure, wherein the second ultra-thin  
nitride film is deposited by using an atomic layer deposition  
(ALD) technique;

completing formation of the nitride/high-k material/nitride gate dielectric stack from the  
20 sandwich structure; and  
completing fabrication of the device.

13. **(previously amended)** A method as recited in claim 12,  
wherein the first ultra-thin nitride film comprises silicon nitride ( $\text{Si}_3\text{N}_4$ ), and  
wherein the first ultra-thin nitride film has a thickness in a range of 1 to 2 atomic layer(s).
14. **(currently amended)** A method as recited in claim 13,  
[wherein the high-k material comprises a thin metal film,]  
wherein the thin metal film further comprises [at least one metal selected from a group  
consisting essentially of zirconium (Zr), hafnium (Hf), titanium (Ti), and]  
5                    tantalum (Ta), and  
wherein the thin metal film further comprises a metal oxide.
15. **(previously amended)** A method as recited in claim 14,  
wherein the second ultra-thin nitride film comprises silicon nitride ( $\text{Si}_3\text{N}_4$ ), and  
wherein the second ultra-thin nitride film has a thickness in a range of 1 to 2 atomic  
layer(s).
16. **(currently amended)** A method as recited in claim 15, wherein completing formation  
of the nitride/high-k material/nitride gate dielectric stack from the sandwich structure  
comprises:  
depositing a thick gate material on the second ultra-thin nitride film;  
5                    patterning the thick gate material, thereby forming a gate electrode; and  
etching portions of the sandwich structure uncovered by the gate electrode, thereby  
completing formation of the nitride/high-k material/nitride gate dielectric stack.
17. **(originally filed)** A method as recited in claim 16, wherein completing fabrication of the  
device comprises forming of a MOSFET structure comprising the gate dielectric stack.
18. **(originally filed)** A method as recited in claim 17,  
wherein the thick gate material comprises a material selected from a group consisting  
essentially of polysilicon (poly-Si) and polysilicon-germanium (poly-SiGe), and  
wherein the thick gate material is patterned using a material such as photoresist.

19. **(originally filed)** A method as recited in claim 18, wherein completing fabrication of the device comprises:

forming a source/drain structure in the substrate and flanking the gate dielectric stack;

forming at least one spacer on at least one sidewall of the gate dielectric stack; and

- 5 silicidizing a shallow source/drain region as well as the high-k gate stack, thereby  
forming a source/drain silicide in a shallow source/drain region of the substrate  
and a gate silicide on the gate dielectric stack.

20. **(previously canceled)**